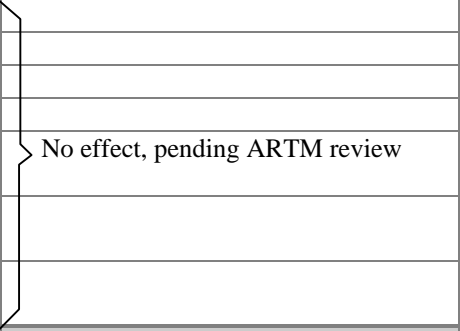
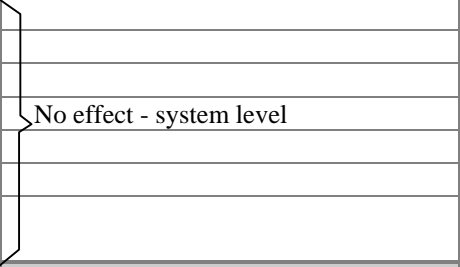


NexGenBus Team

Bus Requirements as a Function of System Features

<u>System Features</u>	<u>Quantitative Measurement(s)</u>	<u>Affected Bus Characteristic(s)</u>
Open systems architecture		
Simultaneous sampling		
100% system wide		Protocol - Synchronous Capable
Selected	Multiple rate groups (8 minimum)	Protocol - Synchronous Capable
Data Sources		
IRIG PCM	~8 sources, 50 Mbps total	Throughput - Data is Data
Time (IRIG/GPS)	1 source, IRIG G, 100kHz, 100 frames/sec DGPS, 115kbaud, 20 Hz update	
GPS Position Information	4 sources, DGPS, 115kbaud, 20 Hz	
Analog (DC-1kHz)	500 @ 100Hz, 16 bits, 8 s/Hz - 6.4Mbps	
Vibration	16 @ 10kHz, 16 bits, 8 s/Hz - 20.5 Mbps	
Acoustic (20Hz - 40kHz)	30 @ 20kHz, 16 bits, 8 s/Hz - 76.8Mbps	
Strain	1200 @ 750Hz, 16 bits, 8 s/Hz - 115 Mbps	
Digital		
Serial	422w232protocol, 10 @ 115.2kbaud ECL, Radar @ ~50 Mbps, max 16-1553 @ 1.2 Mbps - 19.2 Mbps ARINC 429, x @ 100kHz ARINC 629, Ethernet, 1 @ 10 Mbps FDDI, 1 @ 50 Mbps	
Parallel	SCSI-1, 1 @ 5 MBps, 8W SCSI-2, 1 @ 10 MBps, 8W SCSI-3, 1 @ 40 MBps, 16W	
Video	Weapons release, 12 @ 4 Mbps	
Audio (300 Hz - 3 kHz)	1 CVSD @ 16 kbps	
Two-way communication with data sources		
Smart transducers		Support IEEE1451 data elements
Programmable acquisition units	256 DAU's	Protocol
Acquire data to allow reconstruction of data sources into native mode	Reconstruct: 1553, RS422/232, ARINC 429 [Check on 1553 O/H requirements]	0.1μ-second timing on data packets (1553)
Bus bridge (2 way communication)		Protocol

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ARTm technology capable		
Digital signal processing		
Down sampling of data (e.g. TM)		
Data compression		
Error detection/correction		
Two-way ground communication link		
Adaptive parameter sampling (data driven events)		
Selectable transmission rates during a test		
Outputs		
Digital to Analog (D/A)		
Audio/Video		
Computer compatible outputs		
IRIG compatible outputs		
Packets		
PCM		
Compatible w/ legacy tapes and TM's		
Cockpit multifunction display interactive with data system	232/422/Ethernet Specific Bus Bridge	
Environmental		
EMI	Meet subset of 461	Cable and Connectors
Size	½” diameter max. 3” bend radius max.	Cable and Connectors Cable, optical fiber
Connectors	Manufacturability on the flightline Positive lock connection small backshell/strain relief	Cable and connectors
Environment	MIL-W-5088 approved (no PVC cover) Meet subset of 810	Cable
Network topology		
Bus length Repeaters required for min length	100 feet min. 4 max (25 feet between repeaters)	
Airborne data processing		No effect
Data security/encryption		
Unit loads		No requirement
Output data		No effect
Wireless DAU		No effect
Multiple commandable formats		Protocol